

CLAIMS

1. A wind-driven power-plant rotor blade comprising sectional contour having a relative thickness which decreases toward the outside from a blade root to a blade tip, said blade contour comprising a leading edge and a trailing edge and also a suction side and a pressure side, said contoured blade when being impacted by an incident airflow generating reduced pressure at the suction side relative to the pressure side, the pressure differential resulting in lift, the said suction side being fitted with a device optimizing the incident airflow around the said blade,

characterized in that the device

10 comprises at least one planar element (17, 18) which is mounted by one of its narrow sides onto the suction side (15) and which runs substantially in the direction of the incident airflow said planar element being arranged in the zone of a cross-flow on the suction side (15) from the blade root (13) to the blade tip (14), the height and length of the planar element (17, 18) being selected so that said element shall effectively reduce said cross-flow.

15 2. Rotor blade as claimed in claim 1, characterized in that the planar element is mounted at least in the region of a cross-flow running on the suction side of the blade contour between the zone of maximum relative contour depth and the blade trailing edge.

20 3. Rotor blade as claimed in one of the above claims, characterized in that the length of the planar element extends over the full width of the rotor blade suction side.

4. Rotor blade as claimed in one of the above claims, characterized in that the planar element is straight in its longitudinal direction.

25 5. Rotor blade as claimed in claim 4, characterized in that the direction of the planar element does not deviate more than 10° from the tangent line touching the circle formed by the radius subtended by the element position.

6. Rotor blade as claimed in one of claims 1-3, characterized in that the planar element is constituted in a manner that it extends in its longitudinal direction to follow the path of the radius subtended by the distance between the front end of the planar element
5 and the axis of rotation of the rotor,

7. Rotor blade as claimed in one of the above claims, characterized in that the rotor blade is fitted with several planar elements on its suction side.

10 8. Rotor blade as claimed in claim 7, characterized in that the planar elements are mounted on the rotor blade suction side in a zone extending from the blade root to half the length of the rotor blade.

15 9. Rotor blade as claimed in claim 7, characterized in that the planar elements are mounted on the rotor blade suction side in a zone extending from the blade root to one third the length of said blade.

20 10. Rotor blade as claimed in either of claims 8 and 9, characterized at least one planar element is mounted in a zone extending from the blade root to beyond a transition range wherein the blade root contour merges into a blade-lift generating contour.

25 11. Rotor blade as claimed in one of claims 8 through 10, characterized in that at least one planar element is mounted in a zone situated from the blade root to the near side of the transition range where the blade root contour merges into a lift-generating blade contour.

12. Rotor blade as claimed in one of the above claims, characterized in that the planar element is air-permeable at least segment-wise, for instance in the form of a grid or perforations.

5 13. Planar element as claimed in claim 14, characterized in that it can be made of a metal, for instance a high-grade steel, or of aluminum, plastic, compound materials such as GRP or CFP, or a combination of these materials.

10 14. A planar element as claimed in one of the above claims, characterized in that

the planar element can be mounted at one of its thin sides to the suction side of a contoured rotor blade of a wind-driven power-plant to be longitudinally aligned in the direction of airflow and that its length and height are selected in manner that it implements an effective reduction of a cross-flow running outward from the blade root.

15 15. Planar element as claimed in claim 14, characterized in that the thin side of the planar element facing the rotor blade matches the rotor contour at its affixation position.

20 16. Planar element as claimed in claim 14, characterized in that it can be molded elastically or plastically and can be matched to the rotor contour at its affixation position.